17. The method according to claim 16, wherein the introducing step comprises ion-implanting the passivating substance X.

18. The method according to claim 17, wherein the introducing step comprises defining an implantation maximum for the passivating substance X in the vicinity of the interface.

19. The method according to claim 16, wherein the passivating substance X is introduced into the semiconductor structure during a fabrication thereof, by the following steps:

providing two silicon semiconductor substrates;

oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates;

selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates;

joining the two silicon semiconductor substrates by contacting the two oxide layers; and

partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer.

20. The method according to claim 16, which comprises forming a covering oxide layer on the monocrystalline silicon layer.

21. The method according to claim 7, which comprises patterning the monocrystalline silicon layer by etching away regions thereof down to the underlying insulation layer.

22. The method according to claim 21, wherein the patterning step is performed before the step of introducing the passivating substance X into one of an insulation layer and the monocrystalline silicon layer.

23. The method according to claim 21, wherein the patterning step is performed after the step of introducing the passivating substance X into one of the insulation layer and the monocrystalline silicon layer.

24. The method according to claim 16, which comprises:

doping the monocrystalline silicon layer differently region by region by ion implantation; and

performing the doping step after the step of introducing the passivating substance X and the heat-treating step.

25. The method according to claim 21, wherein the step of introducing a passivating substance X into the monocrystalline silicon layer is performed such that an implanted dose of the passivating substance X is below an amorphizing dose of silicon. --